International Journal of Engineering and Information Systems (IJEAIS)
ISSN: 2643-640X
Vol. 5 Issue 3, March - 2021, Pages: 216-218

Complex Unit For The Simultaneous Use Of A Transverse Surface And A Longitudinal Ridge When Irrigating Cotton

Ostonov Shukhrat Saidovich, Ibodov Islom Nizomiy Ugli, Safarov Shavkat Tukhta Ugli

Bukhara branch of the Tashkent Institute of Irrigation and Agricultural Mechanization Engineers
the Republic of Uzbekistan

***Abstract*—** *The article provides data on the development of a complex Palodelatel unit without damaging growing plants, the simultaneous rate of a transverse surfae and a longitudinal ridge in saline, sloping uneven soils in the Bukhara region, also taking into account the slope and unevenness of the soil relief, in a scientifically based form it is stated about the uniform provi sion of irrigation water and reduction of manual labor, working time, duration and distance between irrigation days, saving spent irrigation water and elimination of salt spots and reducing the cost of irrigation water by 25%, irrigation duration by 1.5 -2 days, crop addition by 5-4, 2 c / ha.*

Keywords— utility model, transverse floor, longitudinal ridges, soil heap, frame, hydraulic cylinder, suspension mechanism, yield, profitability.

1. INTRODUCTION

Over the past 10 years, especially in desert and saline soils (in the Bukhara oasis), global climate change and extreme air temperatures, from the 2nd decade of May to the 1st decade of autumn, there are hotter and longer harmssels, and with a lack of water, for growing high-quality crops has some problems. In this regard, conducting scientific research to identify the effectiveness and use of water and resource-saving integrated aggregate - simultaneous rates of the transverse surface and longitudinal ridge on saline and uneven fields of agricultural crops for uniform and economical distribution of irrigation water, and elimination of saline spots, obtaining high and high-quality cotton yields - raw materials and other crops, cotton complex, is very relevant. Typically, irrigated agriculture has higher yields than rainfed agriculture due to the fact that they are provided with water at normal levels during the growing season of crops. But, nevertheless, for a uniform and satisfactory supply of crops with irrigation water and mineral nutrition, in order to obtain a high and high-quality yield, subjective factors must be taken into account, such as: bias, unevenness, relief and degree of salinity, depth of occurrence, mechanical composition of the soil and hydromodular zoning, preparation of land for irrigation, etc. Taking into account the fact that a number of tasks and factors to a certain extent affect the yield and its quality, it is important how to organize irrigation, efficient use of water and resource-saving innovative technologies in the irrigation system is one of the most pressing issues [9,10,11].

To obtain a high and high-quality cotton crop, taking into account the state of variability of the relief of sown lands, the unevenness and salinity of soils, their slope, ameliorative (semi-hydromorphic, hydromorphic) state, hydromodular zoning and the location of salty spots, the depth of groundwater, etc. from such cotton lands, they require, with the help of a palletiser, to divide into small and large floors, depending on the slope of the site, and at the same time put a transverse floor and a longitudinal ridge. And to irrigate efficiently

If, during the growing season of cotton, before irrigation with the help of PR-0.5 (pallet separator-leveler), a transverse surface were placed, then the total coverage of the tractor volume of cotton seedlings would be damaged, and most of the cotton seedlings would remain under the soil, which would lead to a decrease in yield . If installed manually or with a PR-0.5 unit (palootdel-equalizer), it requires a lot of labor, working time and fuel, due to the size of the unit, soil agrophysics deteriorates, and the cost of the product also increases. In such unfavorable conditions, freeing workers from manual labor, working time and at the same time placing the transverse surface and the longitudinal ridge, taking into account the condition of the soil, irrigate cotton without damaging the seedlings is of great importance in irrigated agriculture and is the most relevant, economical, water and resource-saving, and in an efficient way.

2. MAIN PART

During the growing season of cotton, before irrigation, prepare the soil for irrigation, ensure balanced consumption of water and nutrients by the plant, reduce water loss, create the most optimal irrigation system, irrigate in deserts, saline soils and groundwater at a height of 2-3 m and the Bukhara branch of the Tashkent the Institute of Irrigation and Agricultural Mechanization Engineers and the Scientific Research Institute of Breeding, Seed Production and Cultivation of Agrotechnology of the Bukhara Scientific Experimental Station in 2018-2020 for the development of water and resource-saving equipment, on saline soils to obtain a high and high-quality cotton harvest, at the same time, studies were carried out to test the complex unit of the palletiser - longitudinal ridge and transverse floor, and an application for a new complex unit registered for the RUz patent IPA(FAP 2021 0024) [3,4,16,17,18,19,20,21].

The field experiment was laid on two contrast lands, differing in hydromodulated zoning and in the type of soil. A 1-field plot was installed in Bukhara region, Vobkent region, on a farm named "Muzaffar Zainidinov", Republic of Uzbekistan. The depth of groundwater, which in this area is 3 m, the soil is slightly saline, in terms of the mechanical composition of soils , medium (semi-hydromorphic, VI hydromodular zoning) and 2-experimental field were located in the Bukhara region, Tashkent Institute of Irrigation and Mechanization of Agricultural Engineers of the Bukhara branch, Kagan training field site, studied by comparing the control option with the use of a complex unit, the simultaneous rates of the transverse floor and longitudinal ridge in areas with increased salinity and heavy soil texture (hydromorphic, IX hydromodular zoning), in the cotton variety Bukhara-8. In both experiments, the options consisted of 2 options, 4 repetitions and 8 rows in each farm, and the total land area of both field s was 2.5 hectares, a total of 5 hectares. On the first experimental field, the length of the ridges was 70-80 m, and on field 2 - 100-110 m, transverse floors were formed.

Literary review. In Uzbekistan have with mein general m more 44797,7 mln. hectares of land, of which just 20 million. ha s used in agricul governmental th branch, and irrigated lands compiled th t 3,2mln hectares at Kotor 's grown every year agricultural products to ensure I population. Irrigated land, depending on the ratio of the soil of moisture fall into automorphic s, semihydromorphic s and hydromorphic s.[9]. In Bukhara region Society and e op on Shai land is 274 612 hectares, of which 38903 hectares (14.2%) non-saline, and 235709 hectares (85,8%) belong to those minutes or less salinization spineIn Bukhara region in accordance with the recommended scale reclamation (semihydromorphic and hydromorpho us) zonal areas razdelyayayutsya on II,III, IV, V, VI, VII, VIII, IX 10 minute hydromodule areas and in dependence on the power of texture, structure and adding soil s soil in the aeration layer and the depth of ground water (1,0-2,0;2.0-3.0m) [9,10,11]. When watering cotton, depending on the meliorative (semi-hydromorphic and hydromorphic) state of soils and zonal groups of hydromodules, taking into account the growing season, the norms and terms of their irrigation are established. For example, in areas with desert, light loamy, gravel soils, with a groundwater depth of 3 m (in the II hydromodular zoning), cotton is watered during the period of growth and development from germination to flowering 3 times, during the flowering period 5 times and during the ripening period - 1 times (3-5-1 system water mode), the interval between watering s -15-12-15 days; y su sand x and loamy x , a depth of GRUN tovyh water 3m (III hydromodule area ation) is poured cotton 2-4-1 times with intervals of days of watering 16-14-25; sandy and loamy, IV hydromodular region, with a groundwater depth of 2-3 m, also watered according to the 3-5-1 system with an irrigation interval of 12-13-20 days. Areas of the VI hydromodular region with a groundwater depth of 2-3 m are irrigated according to the 1-4-1 system with an interval between irrigations of 16-15-25 days; sections of the VI hydromodular region with a groundwater depth of 1-2 m and of the VII hydromodular region are irrigated according to the 2-5-1 system with an interval between irrigations of 15-12-20 days ; groundwater depth 1-2m in VIII hydromodule area irrigation system 1-3-0 and 1-3-1 intervals irrigation 17-15-25 days and a near them burial it groundwater 1-2 meters in area IX hydromodule in areas with heavy loamy and clayey soils, the irrigation system 1-3-1 with irrigation intervals of 19-16-25 days[9,10,11].When preparing cotton fields for irrigation, the technological process of floor irrigation is not taken into account at the regional and nat ional levels. Standard technological maps developed by the Uzbek Research Institute of Agriculture for 2016-2020 do not take into account this technological process, but in some climatic zones (different salinity, deserts, semi-hydromorphic and hydromorphic) in the second and third climatic zones, such as in Bukhara region, in this technological process there is no possibility to irrigate cotton fields [3]. When irrigating such fields, especially on hydromorphic soils, when the soil is saline and the soils are p oor and water permeability is high, water does not pass along the ridges, penetrates deep into the soil through capillary holes, merges with groundwater, raises groundwater , and creates secondary salinization.

Furthermore, due to the fact that cotton fields not saturated water oh and fertilizers do not reach the root system in the upper layer of the soil particles are formed of brine, slowing growth and development of cotton, their height, the accumulation of nutrie nts and efficiency of photosynthesis and reduced. Ra to move uyutsya plenty of water and watering duration increases. As a result, the cost of the product increases, which negatively affects the yield and its quality [3]. The Bukhara branch of the Research Institute of Breeding, Seed Production and Agricultural Technologies for Cotton Growing has developed recommendations for farms for growing medium staple cotton varieties "Bukhara-6", "Bukhara-8" and "Bukhara-102", the value of the floor rate and the requirements for it are given [11].

3. CONCLUSION

The soil and climatic conditions Bukhara region irrigations during the growing season cotton - are determined depending on the temperature of air, mechanical soil composition, characteristics and variety and reclamation zone, preferably in the period of budding soiling of fertilizers necessary, i.e. at this stage field prepared ivayutsya to watering.

Before the first irrigation of cotton, before the preparation of irrigation, the necessary mineral fertilizers (35% nitrogen, 30% potassium fertilizers) are applied with hilling along the aisles , while longitudinal ridges and transverse floors are placed without damaging the plants.

According to the results of studies in 1-2 field experiments with two different ameliorative regional and zonal characteristics of the hydromodule in 2018-2020, cotton in option 2 using a utility model in field experiment 1 with a simultaneous rate of ridges and cross-floor, the total water consumption for the period was -7300 m3 / ha, the duration of irrigation is reduced to 15 hours, the

interval between waterings is 13-15-22 days, manual labor is reduced to 4 hours per 5 hectares; cotton harvest - 45 c / ha; water consumption for obtaining 1 centner of yield is 162.2 m3 / ha, which is less than the control water consumption by 42.8 m3 / ha.

4. REFERENCES

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